

# Universe

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## Thanks for the memories



## Lab bids goodbye to Stone

By Mark Whalen

With heartfelt testimonials, gifts and a bit of humor, JPL said a fond farewell Tuesday to Dr. Ed Stone, who is retiring as Laboratory director after 10 distinguished years of leadership.

Stone, who was also feted with an April 23 retirement dinner at the Pasadena Hilton hotel attended by more than 300 people, received a number of gifts and tributes from Executive Council members and others on behalf of their organizations.

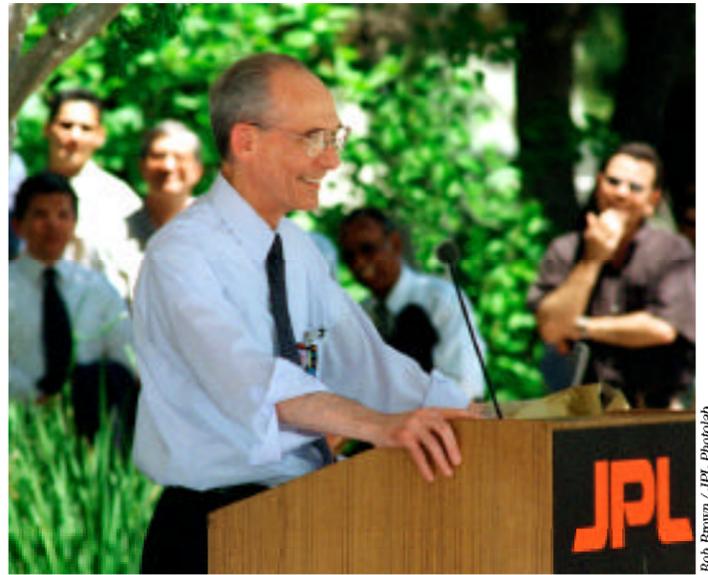
With his retirement, Stone should enjoy a less hectic travel schedule. Quipped Legislative and International Affairs Manager Dr. Rich O'Toole as he offered a bouquet of flowers to Stone's wife, Alice, "This is a small token for sending her husband away every week for the last 10 years on a trip to Washington."

Stone received approximately 80 letters from foreign space agencies, NASA and ex-JPLers. Among those were notes from Dr. Ed Weiler, NASA's associate director for space science, who called Stone "a model for me in my public service science career over the past two decades," and President George W. Bush (see left).

On behalf of JPL, Deputy Director Larry Dumas presented Stone with a cruise, where "Ed and Alice can choose to go either south through the Panama Canal or north through the Inlet passage to Alaska, and if they choose to go further than that they will either have to row or come up with their own money." Dumas also presented what he termed the last flight spare Voyager record cover, a model of the same discs that still fly aboard the twin Voyagers, launched in the late 1970s.

Dr. Michael Werner, project scientist for the Space Infrared Telescope Facility,

announced the establishment of the new Dr. Edward C. Stone Award for Outstanding Research Publication, which will



Bob Brown / JPL, PhotoLab

recognize publications by JPL science and technology researchers. Up to four awards will be given each year, with winners to receive a cash prize and "we hope, a modest research grant," Werner said.

Dr. Charles Elachi, who will become the new JPL director May 1, told Stone: "You saw the future and you took us there. Thank you very much for the legacy you are leaving."

JPLers reacted with applause when Mars Program Director Dr. Firouz Naderi noted what has most impressed him about Stone. "For such a brilliant man, (he is so) unaffected and unassuming. He's eminently approachable." Naderi presented Stone with a montage of Mars landscapes.

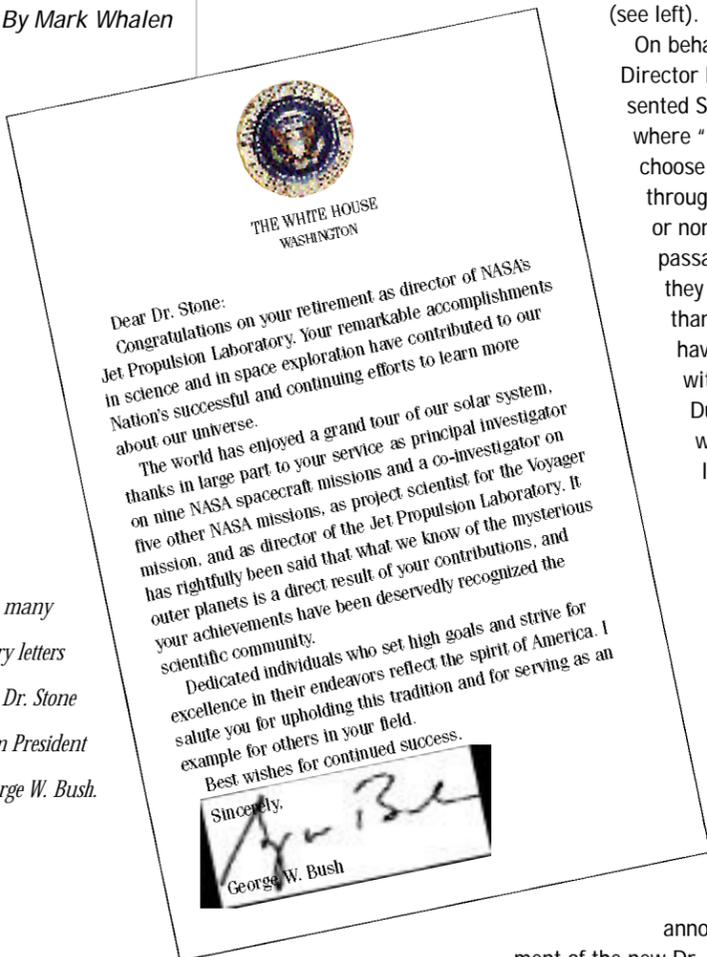
In addition to directorate representatives, Stone also received tributes and thanks from the Advisory Council for Women and the Advisory Committee for Minority Affairs for his support of the Lab's diversity efforts.

Stone thanked the gathering, noting, "This is a great way to end my wonderful 10 years at the Laboratory. At JPL, we get to do what no one else has done, and it's been a privilege for me to be a part of this great Laboratory; not just for the last 10 years, but actually since 1972, when I started on Voyager. The project continues, I hope for at least another 20 years, and I look forward to learning through that whole time period.

"The year after Voyager 2's encounter with Neptune, I was fortunate, once again, to be asked to become JPL's director beginning in January 1991.

"It wasn't always easy. But I'm especially pleased that, thanks to the efforts of everyone at the Laboratory, JPL continues to lead in this new era of frequent, lower-cost missions. I especially want to thank deputy directors Larry Dumas and Pete Lyman before him for what they have done for the Laboratory, making it possible for me to do the job I needed to do.

"I'd like to thank all of you for sharing your experience and by promising to do whatever I can to help you continue to expand the frontiers of space in the years ahead."



Among the many congratulatory letters received by Dr. Stone was one from President George W. Bush.

## 1 b e m e M A R S

## Mars-bound Odyssey takes parting shots of Earth

By Mary Hardin

To see the color images of Earth provided by 2001 Mars Odyssey's Thermal Emission Imaging System, log on to <http://themis.asu.edu/latest.html>.

JPL's 2001 Mars Odyssey spacecraft turned its multipurpose camera homeward last week and took its first picture—a shot of a faint crescent Earth—as the spacecraft heads off toward its destination.

The image was taken as part of the calibration process for the Thermal Emission Imaging System, the camera system that is one of three science instrument packages on the spacecraft. The imaging system will study the Martian surface in both visible and infrared light and will help determine what minerals are present. It also will map landscapes on Mars at resolutions comparable to that of NASA's Landsat Earth-observing satellite.

"Not only was this a successful calibration of the instrument, it demonstrated that we can accurately point the spacecraft, and it put the team members through their paces," said David A. Spencer, the Odyssey mission manager at JPL.

"The spacecraft team did a fantastic job to

image the Earth," said Dr. Philip Christensen of Arizona State University, principal investigator for the THEMIS imaging system. "These images are spectacular, especially given how far away we were. They have given us the first-ever thermal-infrared view of Earth and the moon from interplanetary space."

The visible light image shows the night side of the crescent Earth looking toward the South Pole. Taken at the same time, the infrared image measures temperature, showing its "night-vision" capability to observe Earth even in the dark.

"The instrument measured a low surface temperature of minus 50 degrees Celsius (minus 58 degrees Fahrenheit) for Antarctica in winter, and a high of 9 degrees Celsius (48.2 degrees Fahrenheit) at night in Australia," Christensen said. "These temperatures agree remarkably well with observed temperatures of minus 63 degrees Celsius at Vostok Station in Antarctica, and 10 degrees

Celsius in Australia. Thus we demonstrated that the instrument can accurately measure temperatures, even from a distance of more than 3 million kilometers (2 million miles)."

These observations of Antarctica provide an excellent test for how the imaging system will perform at Mars, where afternoon temperatures are comparable to those in the winter night at Earth's South Pole. The Antarctic continent, which was uncharted less than 100 years ago, was the last landmass observed by Odyssey as it left Earth on its way to Mars.

The images were taken on April 19 and are available online at <http://themis.asu.edu/latest.html>.

The Odyssey spacecraft continues to be in excellent health with all its systems working normally. Odyssey is now more than 4.7 million kilometers (2.9 million miles) from Earth and traveling at a speed of about 3.3 kilometers per second (about 7,500 mph) relative to the Earth.

# News Briefs



The Horsehead nebula as imaged by JPL's Wide Field and Planetary Camera 2.

## 100,000 pictures for WFPC2

As NASA's Hubble Space Telescope celebrates its 11th birthday, its JPL-built Wide Field and Planetary Camera 2 has added picture number 100,000 to its bulging photo album.

In honor of the birthday and by popular demand, the Hubble team has released a new WFPC2 image and an animation of the Horsehead nebula, available online at <http://www.jpl.nasa.gov/pictures/wfpc>.

Last year, 500,000 online voters, including students, teachers, and professional and amateur astronomers, chose the nebula as an astronomical target for Hubble to observe.

## Acting Mars program director named

Mars Program Director G. SCOTT HUBBARD has left that position and as of May 6 will be replaced as acting director by ORLANDO FIGUEROA, currently NASA's deputy chief engineer for systems engineering.

Prior to his present position, Figueroa spent 22 years at NASA's Goddard Space Flight Center, where his experience includes engineering leadership positions with the Cosmic Background Explorer; manager for the Superfluid Helium On Orbit Transfer experiment, Small Explorers Project and the Explorers Program; and director of the Systems, Technology, and Advanced Concepts Directorate.

"It is a real privilege to rejoin the space science community," Figueroa said. "I look forward to building upon the foundation that Scott has left behind, and to the excitement of directing such an important and challenging program."

## Mars sample return scenarios sought

The Mars Exploration Program has awarded four industry team contracts to conduct initial studies of specific implementation scenarios for a first Mars sample return mission that might be launched as early as 2011.

The four teams selected are Ball Aerospace & Technologies Corp., Boulder, Colo.; Boeing Company, Huntington Beach; Lockheed Martin Corp., Denver; and TRW, Redondo Beach.

The contracts are valued at \$1 million each and are to be performed over a six-month period.

The studies will formulate a broad suite of potential solutions to robotically acquiring rock and soil samples from Mars. NASA will select the best solutions for further development.

"These studies will help identify potential approaches to the mission, technology development and demonstration needs, and the infrastructure required to perform such a mission," said DR. FIROUZ NADERI, the Mars program manager at JPL. "The studies are an important part of determining potential future Mars program direction over the next decade."

## Nanoscale system acquired

JPL has acquired one of the world's finest electron beam lithography systems, one that will allow researchers to work on the sub-molecular scale.

The system, operated in JPL's Micro-devices Laboratory, will allow breakthroughs in miniaturization that could

lead to significant reductions in mass and cost of spacecraft to look for traces of life on distant planets. For researchers, it means access to one of only three such systems in the world, and the only one in the public sector devoted to pure research for building the nano-scale devices of the future.

"We want to let researchers from universities, private industry and other government institutions know that we now have this capability and that it is available for their use," said JPL chief technologist DR. BARBARA WILSON.

"The E-Beam lithography system is like a very fast, very high-resolution camera, but instead of exposing photosensitive film to light, a thin layer of electron-sensitive material is exposed to electrons," said DR. PAUL MAKER, manager of JPL's Electron Beam Lithography Laboratory. "Instead of using a shutter that imprints the whole image at once, an intense electron beam focused to a tiny spot is rastered over the chip like the beam that creates the image on a television screen."

## Kiwanis Club meeting set

An informational meeting will be held April 30 for the formation of a Kiwanis Club at JPL. Staff are invited to bring lunch to the meeting in Building 301-169 from 12:05 to 12:55 p.m.

Kiwanis is a worldwide service organization of nearly 300,000 members. Its primary goal is to improve people's lives, especially the needy, seniors and children, according to organizer VICTOR LEGERTON.

Included in the discussion will be the nature of the meetings and activities, benefits to members and to the Lab, and the expectations of members. Membership is open to all JPL employees and contractors. Especially encouraged to attend are those who participated in Key Club in high school or Circle K in college, both Kiwanis-sponsored organizations.

For more information, call Legerton at ext. 4-8838.

## Ethics training available

The Ethics Office is scheduling and conducting classes for various group, section or division presentations. Ethics advisers are available to present at staff meetings, and training sessions last about one hour.

Call MARTHA AVIÑA at ext. 4-3154 to schedule a training session.

## Summer camp is filling fast

Summer camp for the JPL/Caltech Child Educational Center is filling up fast. For best selection of dates and sites, enrollment applications need to be completed as soon as possible.

Camp begins June 25 and is offered at three locations: the CEC site near JPL; Paradise Canyon Elementary School in La Cañada; and the CEC site in Pasadena, near Caltech.

Full- and part-time schedules are available, as is tuition assistance for qualifying JPL and Caltech families.

To obtain a brochure and application or to arrange a site visit, call the CEC at ext. 4-3418 or go online to [www.ceconline.org](http://www.ceconline.org). Brochures are also available at the ERC.

## Helin names asteroids in honor of Division 32 pair

Dutch Slager/JPL Photolab



Two JPL employees were honored in a ceremony earlier this month by having asteroids named after them.

Asteroid (17447) Heindl, discovered by JPL astronomer Eleanor Helin in 1990, was named for Dr. Clifford Heindl, deputy manager of Division 32, in recognition of his "outstanding contributions to the division and JPL." Asteroid (6856) Bethemmons, discovered by Helin in 1989, was named in honor of Elizabeth Emmons for her "exceptional contributions to Division 32 as its administrator."

Commemorative plaques were presented by Drs. Charles Elachi and Moustafa Chahine.

Helin discovered both asteroids at Palomar Observatory near San Diego.

# Special Events Calendar

## Ongoing Support Groups

Alcoholics Anonymous—Meetings are available. Call the Employee Assistance Program at ext. 4-3680 for time and location.

Codependents Anonymous—Meeting at noon every Wednesday. Call Occupational Health Services at ext. 4-3319.

End of Life Issues and Bereavement—Meets the second Monday of the month at noon. For location, call the JPL Employee Assistance Program at ext. 4-3680.

Gay, Lesbian and Bisexual Support Group—Meets the first and third Fridays of the month at noon in Building 125-133. Call the Employee Assistance Program at ext. 4-3680 or Randy Herrera at ext. 3-0664.

Parent Support Group—Meets the third Thursday of the month at noon. For location, call the JPL Employee Assistance Program at ext. 4-3680.

Senior Caregivers Support Group—Meets the first Tuesday of the month. For time and location, call the JPL Employee Assistance Program at ext. 4-3680.

## Friday, April 27

Book Signing—Shane Crotty, author of *Ahead of the Curve*, a new biography of Caltech president Dr. David Baltimore, will be available to sign copies



of the book from 3 to 5 p.m. at the Athenaeum. Copies of the book, at \$29.95, will be available for purchase at that time. The book can also be ordered through the bookstore at [http://bookstore.caltech.edu/html/bk\\_baltimore\\_curve.html](http://bookstore.caltech.edu/html/bk_baltimore_curve.html); by e-mail at [citbook@caltech.edu](mailto:citbook@caltech.edu); by phone at (626) 395-6161; or at Caltech mail stop 1-51.

## Saturday, April 28

Ballet Folklorico Los Lupenos—Regional dances, authentic stories and tableaus from Mexico will be featured. To be held at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$22, \$18 and \$14. For information, call (626) 395-4652.

## Sunday, April 29

Chamber Music—Winners of the Coleman Chamber Ensemble Competition will perform at 3:30 p.m. in Caltech's Ramo Auditorium. Tickets are \$10. For information, call (626) 395-4652.

Skeptics Society Lecture—Los Angeles Times science writer K.C. Cole will present "The Hole in the Universe: How Scientists Peered Over the Edge of Emptiness and Found Everything" at 2 p.m. in Caltech's Baxter Lecture Hall. For information, call (626) 395-4652.

## Tuesday, May 1

JPL Gamers Club—Meeting at noon in Building 301-227.

JPL Genealogy Club—Meeting at noon in Building 301-271.

## Wednesday, May 2

Associated Retirees of JPL/Caltech Board—Meeting at 10 a.m. at the Caltech Credit Union, 528 Foothill Blvd., La Cañada.

Music-on-the-Mall—The Bone Sharks will play the surfing sounds of the '60s from noon to 1 p.m. in the mall.

## Thursday, May 3

JPL Gun Club—Meeting at noon in Building 183-328.

## Friday, May 4

National Anxiety Disorders Screening Day—At noon in Building 180-101, Dr. Barbara Carlson of Las Encinas Hospital will discuss methods for reducing stress from anxiety disorders such as nervousness, excessive worry, obsessive-compulsive behavior, phobias, sleeping problems and lack of concentration. Direct questions to the JPL Employee Assistance Program, ext. 4-3680.

## Fri., May 4–Sat., May 5

Capitol Steps—Former Capitol Hill staffers spoof politicians and newsmakers with song parodies at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$32, \$28 and \$24. For information, call (626) 395-4652.

## Sunday, May 6

Jazz Concert—The Jeff Hamilton Trio will perform at 3:30 p.m. in Caltech's Dabney Lounge. Admission is free. For information, call (626) 395-4652.

## Monday, May 7

JPL 2001 Lecture Series—Michael Watkins and Ab Davis will discuss science opportunities and technical challenges of the Gravity Recovery and Climate Experiment (GRACE) mission, scheduled to launch in November. To be held at 11:15 a.m. in von Kármán Auditorium.

## Tuesday, May 8

JPL Stamp Club—Meeting at noon in Building 183-328.

## Wednesday, May 9

"In Praise of Permissiveness: Coaxing Cells to Make Novel Macromolecules"—Dr. David Tirrell, chair of Caltech's division of chemistry and chemical engineering, will speak at 8 p.m. in Beckman Auditorium. Admission is free. For information, call (626) 395-4652.

Information Technology Symposium—Hosted by the Center for Space Mission Information and Software Systems and the Office for Institutional Computing and Information Services, this event will offer a venue for celebrating JPL's IT community and its contributions, and for comparing notes on challenges, capabilities and accomplishments. Keynote addresses will precede more than 80 presentations and posters on IT work being performed on Lab. Thematic sessions include applications for missions, science and engineering, along with IT cross-cutting themes, infrastructure, and frontiers. For schedule, locations and pre-registration, log on to [http://icis.jpl.nasa.gov/IT\\_Symposium/itsym2001.html](http://icis.jpl.nasa.gov/IT_Symposium/itsym2001.html). For more details, e-mail [IT\\_Symposium@sven.jpl.nasa.gov](mailto:IT_Symposium@sven.jpl.nasa.gov) or call Ed Ng, ext. 4-0166 or Sven Grenander, ext. 4-0156.

JPL Amateur Radio Club—Meeting at noon in Building 238-543.

JPL Toastmasters Club—Meeting at 5:30 p.m. in the Building 167 conference room. Guests welcome. Call Jim Raney at ext. 4-6301.

## Saturday, May 12

Bandorama—The Caltech Jazz Bands and Concert Band will perform at 8 p.m. in Beckman Auditorium. Admission is free. For information, call (626) 395-4652.

# FAREWELL, DR. STONE

By Mark Whalen

DR. ED STONE, JPL'S DIRECTOR SINCE 1991, is stepping down on May 1. During his tenure, the Laboratory has overseen 15 missions for NASA. Stone's exploration days began in 1961 with his first cosmic-ray experiments on Discoverer satellites. He has been a principal investigator on nine NASA spacecraft missions and a co-investigator on five other NASA missions. One of his most famous contributions to space exploration is his continuing role as project scientist for the Voyager mission, whose twin spacecraft studied Jupiter, Saturn, Uranus and Neptune between 1979 and 1989. The Voyagers are still traveling in space and are expected to continue returning scientific information as they reach the outer bounds of our solar system in the next few years. Stone will return full time to Caltech as a professor and scientist, and a researcher still reaping the riches of Voyager data.



**"I've gotten a lot of satisfaction from fostering opportunities for others like the opportunities I've had on Voyager."**

— Dr. Edward Stone



Director  
reminisces  
about his  
decade of  
leadership

Bob Brown / JPL PhotoLab

**QUESTION** You began as JPL director in January 1991. Looking back on your tenure, has it turned out as you expected?

**A** No, not really. I did not anticipate all the changes. The nature of the program has changed dramatically from the 1980s, when we had five launches. In this new era, we've had 15 launches, and have had instruments on five other missions.

**QUESTION** What stands out for you when you think about the past decade?

**A** It's hard to imagine a more exciting decade than we've had. We have had many successes, and the level and the pace of innovation at the Laboratory has dramatically increased. The thing I'm most pleased about is that the Laboratory continues to be the leading innovator in space in this third era of space exploration—which started with Mars Pathfinder—of going often, landing, and bringing samples back to Earth. For example, we have samples coming back from a comet in 2006 from the Stardust mission; this summer, we'll launch Genesis, which will bring back a sample of the sun.

**QUESTION** How do you see JPL beyond the next 10 years into the future?

**A** Well, the next era might be going and staying, building a permanent robotic base of operations elsewhere in the solar system, which through modern communications is as accessible as any place here on Earth. So what's out there becomes, effectively, back here. JPL could be a key factor in realizing such an era, which, I think, is a bridge to eventual human exploration of the bodies in the solar system.

**QUESTION** As the project scientist for Voyager, was it the most satisfying for you among all JPL missions? At the time, did you consider what Voyager's unprecedented tour of the solar system might mean to the future of NASA and the space program?

**A** Voyager was a unique experience for everybody involved, certainly for me. But as director of JPL, I've also gotten a lot of satisfaction from fostering opportunities for others like the opportunities I've had on Voyager.

During the Voyager mission, it was clear that none of us could have anticipated the degree of discovery we found. In that sense, it set a benchmark of exploratory robotic missions. Over that decade, from 1979 to the Neptune encounter in 1989, Voyager really engaged the public's imagination in space exploration.

**QUESTION** What has surprised you the most in terms of scientific discoveries?

**A** Well, there is always a long list of surprises, and from a science point of view it's the surprises that provide the most to be learned. If you find what you expect, that is always interesting, but it doesn't always create the same opportunities for new knowledge. Voyager was replete with surprises, but one that was quite striking was the volcanoes on Io, a moon of Jupiter, that is 100 times more active volcanically than the entire Earth. But look at the surprises Galileo has given us at Jupiter, such as finding a magnetic field on Ganymede, and showing us that there's likely an ocean beneath Europa's icy crust. And Mars Global Surveyor has rediscovered Mars for us. The discovery of gullies on the canyon walls was not expected at all, since it was believed water was frozen kilometers beneath its crust.

I also expect there will be a lot to learn from the first digital topographic map of Earth that will be produced from the Shuttle Radar Topography Mission (SRTM).

**QUESTION** What were the lessons learned from the Mars 98 losses?

**A** We were changing to a new era of missions, and we found the limit. We tried to do two missions for the price of Mars Pathfinder, and it was just too hard. We've learned a lot from this and have put in place new processes and a better safety net so that today's project teams won't face the same limitations as we had with Mars 98. We will continue doing missions more often in this new era, but do them in a robust way.

**QUESTION** What will you be doing after May 1?

**A** I'll work more with my research group at Caltech, called the Space Radiation Lab. It's a group (Caltech professor) Robbie Vogt and I started almost 40 years ago that has focused on measuring the composition of energetic particles in space. I'm looking forward to studying the Voyager data, as we're leaving the solar system and heading toward interstellar space; looking at more detailed data from an experiment I have on Galileo, called the Heavy Ion Counter, that measures sulfur and oxygen originating at Io; and analyzing data from the Advanced Composition Explorer (ACE), a mission that was launched in 1997 and is measuring the composition of matter from the sun. I've been doing my research mostly on weekends, so I'm looking forward to doing these sorts of things during the week again.

**QUESTION** What about leisure time, when you're away from work?

**A** I'm looking forward to spending more time with my family. Both of our daughters and sons-in-law, along with our two grandsons, live in the area.

**QUESTION** Compared to when you became director, how different do you think it will be for Dr. Charles Elachi as he takes over May 1, and what are the main challenges the Lab faces now?

**A** Ten years ago, the number and size of JPL's projects was about to undergo significant change. There were five JPL missions launched in the 1980s. By comparison, five missions are scheduled to be launched in the next 16 months, with 14 more missions later this decade.

The challenge will be to assure the success of these missions, within affordable costs, that will allow the new pace of exploration to be maintained. This is the challenge of managing in the middle, with budgets and goals that are neither too large to be affordable nor too limited to be interesting and feasible with acceptably low risk.

**QUESTION** What will you remember most about the people of JPL?

**A** I've been energized by how much I have learned by working with everyone here. JPL is clearly the place to do what no one has done before. We can do that because everyone here is dedicated, motivated and remarkably innovative. That's the special character of JPL—it creates the environment and the opportunity for groups of people, together, to innovate new systems, ideas and approaches to push back the frontiers of space.

## Letters

We would like to thank Section 369, Division 36 and all our friends at JPL for their support, prayers and the plant sent during the illness of Barbara's father, George Murphy, and his subsequent passing. The past year has been difficult, and without the support of our friends at JPL, it would have been unbearable. Thank you to the ERC for the beautiful plant sent in memory of a fine gentleman.

Erich and Barbara Corduan

The loss of our mother at the age of 85 has emptied our hearts. But the emptiness has been filled with the touches of kindness and considerations from our JPL friends. Thank you eternally!

Mits and Kathy Iwanaga

My family and I would like to express our sincere thanks and appreciation to my JPL friends and co-workers for their prayers, cards, expressions of sympathy and generous donation upon the death of my mother.

Vickie Wang

## Retirees

The following JPL employees retired in April:

George Javin, 43 years, Section 311; James Hix, 42 years, Section 355; Richard Dickinson, 39 years, Section 333; George Null, 39 years, Section 312; George Madrid Sr., 35 years, Section 368; Victor Tuk, 34 years, Section 388; Ross Goodman, 31 years, Section 366; E. Larry Noon, 29 years, Section 366; William Rousey, 29 years, Section 344; John South, 23 years, Section 344; Gloria Bell, 17 years, Section 313; Catherine Magnono, 16 years, Section 386.

## Passings

**ROBERT HOCKENSMITH**, 71, a retired instrument specialist in Section 351, died of cancer Sept. 17, 2000.

Hockensmith worked at the Lab from 1974-95. He is survived by his wife, Mary, two children, three grandchildren and 1 great grandchild. Services were private.

**GEORGE VOLLMER**, 75, a retired engineering associate and member of the technical staff in Section 332, died of cancer March 18 at his home in Naples, Fla.

Vollmer worked at JPL from 1978-91. He is survived by his wife, Jean. Services were private.

**THEODORE BALZER**, 84, a retired supervisor in the former Section 631, died of heart failure March 22.

Balzer worked at JPL from 1964-91. He is survived by his wife, Patricia, three children and four grandchildren. Services were held March 30 at Palm Springs Mausoleum.

**MARY LOU RYAN**, 64, a senior office specialist in Section 708, died of cancer March 26.

Ryan had worked at the Lab since 1992. She is survived by her husband, Thomas, daughters Heida Jo Helm and Katherine Norris, and two grandchildren.

Services were held March 29 at Rose Hills Memorial Park in Whittier.

**ROBERT HUNTE**, 80, a retired senior security guard in Section 613, died of an aneurysm March 28 at his home in Pine Mountain Club.

Hunte joined JPL in 1966 and retired in 1986. He is survived by his wife, Charlotte, daughters Karen and Nancy, six grandchildren and five great grandchildren.

Services were held at Eternal Valley in Newhall.

**JOHN KALVINSKAS**, 74, a retired member of the technical staff in Section 355, died of Parkinson's disease March 29.

Kalvinskaskas worked at JPL from 1974-93. He is survived by son, Adrian. Memorial services were held April 19 at St. Philips in Pasadena.

## Classifieds

### For Sale

BBQ, Structo Golden Classic, approx. 1' x 2' on stand with propane, never used, \$90. 362-7187.

BIKE, mountain, Trek 990, 21 speed, steel frame, newer Rock Shox Indy front shock, gd. cond., \$275/obo. 626/797-2888.

BOOTS, ladies western, 6 1/2 m, tan, like new, HH West, \$10. 249-1523.

BURIAL PLOTS, Rose Hills Whittier, 2 plots, side by side, "Poplar Lawn," near Japanese gardens, \$1,500/ea. or \$2,500/both. 626/296-3782.

CAMERA, Leica, model Z2X with Databack and Zing case, perfect cond., \$250. 626/795-8340.

CD JEWEL CASES, 50, \$10; DIET TAPES, Jenny Craig, set of 14, \$50; COMPUTER POWER CONTROL CENTER, 5 power switches + 1 master switch, 5 surge-protected outlets + 2 modem/fax/phone jacks, new, \$20; ORGAN, Yamaha 415 electronic console w/13 pedals, 3 keyboards, 144 rhythm patterns, pd. \$7,500, sacrifice for \$3,000. 790-3899. CHINA CABINET, 1950s, Drexel mahogany, cash and carry, \$850. 353-9367.

COMPUTER, w/15" monitor, Micron desk-top, 266 MHz Intel Pentium II, 128 MB RAM, 52x CD ROM drive, 6.5 GB hard drive, 100 MB internal Zip drive, DSL ready 10/100 net card, \$450. 489-8197, Ken.

COPIER, Xerox model 5322, makes 2-sided copies, 10 sorting trays, takes all paper sizes, bypass feeder, zoom and more, service contract in place, \$1,125. 957-8813.

EXERCISE EQUIPMENT: Schwinn Airdyne with reading stand \$75; Nordic Trak with video, \$50. 790-6479.

EXERCISER, abdominal Ab Rocker, Body by Jake, like new, includes video and instruction manual, \$40. 367-0969.

FLOWERS, exotic tulips, planted from Holland bulbs in 6-in. plastic pots, in bloom or ready to bloom, \$10/pot. 323/726-7832, Ida.

FURNITURE: kitchen table set, Ethan Allen, hard maple, 48" dia. plus two leaves, 4 captain's chairs \$300; Queen Anne's high back chair and matching ottoman, blue velvet \$150. 626/355-0989.

LAWN MOWER, Murray Power Propeller, 21", 4 hp, Briggs & Stratton engine, used 3 times, sat for a year, \$90. 362-7187.

MATTRESS COVERS: comfortable Cuddle Care, soft support, CA king, 2" thick, wool, exc. cond., retail \$350, sell for \$125; feather mattress cover, down, CA king, gd. cond., \$50. 957-8813.

MISC: roll-top desk & chair, antq. mahogany, \$1,500; tables, 2 custom rod iron indoor/outdoor, heavy glass top, \$2,500; couch, sectional, beige, almost new, \$250; coffee tables, \$75. 4 stacked tables, \$200; bar cart, \$150; child's bike, toys, etc., best offer. 248-8853.

MULCH, cheap. 909/398-1854, Tom.

OFFICE FURNITURE: matching beechwood, for home/office, corner computer desk with printer shelf, 3-drawer locking file cabinet on rollers, cushioned desk chair, like new, \$325 for set, \$225 for desk alone. 790-0335.

OVEN, convection by Décor, self-cleaning, electric 220V, white, wall mount, \$150/obo. 626/584-9632.

RECORD PLAYER, Realistic, 4 speed, gd. cond., \$40; TOASTER OVEN, G.E., classic, vg. cond., \$20; COFFEE PERCOLATOR, 40 cup, stainless steel, electric, vg. cond., \$25. 626/793-1895.

SAW, Dewalt Builder's, 10" radial arm, model 3425, type A, with metal cabinet, model 9362, vg. cond., \$325. 790-3208.

STAMPS, state duck, 1985-90, catalogue value \$2,700, sell for \$1,200/obo. 626/433-8552, pager.

TABLE, dinette, square glass top 5' x 5' w/ metal ft. and 4 matching chairs, \$800/obo; BAR STOOLS, 4 matching, metal frame, all in superb cond., \$400/obo. 626/398-3480.

TREADMILL, ProForm space saver (folds up when not in use; programmable for speed and incline; many course and speed options; bought in 1998, but hardly used, \$500. 790-1979.

TYPEWRITER, antique Underwood, with cover, exc. cond., \$100 firm. 626/284-9664.

VACUUM, Hoover SteamVac Ultra, 5-brush agitator, super cond., like new, cost \$200, sell for \$130. 362-2003, Derek.

WASHER & DRYER, Kenmore, lg. capacity, used but work fine, \$50. 367-0969.

WINDOWS, alum. slider style, for home or mobile home, 5 each 3' h x 5' w, \$35/ea, one 3' h x 8' w, \$55, one 18 1/2" h x 22 1/2" w, \$16; STORM WINDOWS, alum. style, 5 each 47 1/4" h x 47 1/4" w \$65; STROLLERS: 2 umbrella, \$12/ea; 1 reg. fold up, \$16; SNOW SKI RACK, lg. car, \$75; SHED, metal, 5 1/2' d x 8' w x 5 1/2' h, still built, \$275, all are obo. 626/303-5595, Paul.

### Vehicles/Accessories

'89 ACURA Legend LS, fully factory equipped, 1 owner, 170K miles but dealer replaced eng. at 70K miles, needs upholstery and touchup to a few items, mechanically good cond., 2NEN165, \$3,700/obo. 626/335-2460.

'94 CHEVROLET Blazer, only 67,000 mi., hi-output V6 Vortec eng., auto, pwr. win./dr., roof rack, exc. cond., \$9,950/obo. 626/969-7875.

'89 CHEVROLET S10 Blazer sport utility, auto V6, 2 X 2, a/c, pwr. wndws/doors, am/fm/cass., cruise ctrl., tilt whl., tinted wndws., tow pkg., lug. rack, full-sz. spare, 128K mi., well-maint., \$3,600. 626/794-1716.

'70 CHEVROLET Chevelle Malibu, 2 dr., hard top, classic muscle car, 1-year-old paint, (Chevy med. grn), new headliner/some interior, window tinting, weather stripping, new

chrome on bumpers, tires, eng./trans., mounts & more, Centerline rims, 350 eng., auto trans., runs great, 159,000 orig. mi., photos at Pj1mktg@aol.com, \$7,600/obo. 626/303-5595, Paul.

'92 CHRYSLER LeBaron convertible, V6, auto, 109K mi., red w/blk top, alloy wheels, pwr. everything, CD, great car, \$4,800/obo. 626/395-1643, Scott.

COLEMAN tent trailer, basic sleeper unit, 2 double beds, low profile for towing, 2 sets of tires, 1 set new, \$400. 353-3127, Carl.

'72 DATSUN 240Z, w/Chev. 350 V8, automatic trans, roll bar, 70K, fun car, needs tuning, moving, must sell, \$2,000/obo. 323/341 4739 or jwall@oxy.edu.

FORD CAMPER SHELL, for full size pickup, includes 4 pc. carpeted floor, side seats set, \$250/obo. 626/797-5387.

'96 FORD F-150 Eddie Bauer Special, dark blue w/gold trim, V6, std. transmission, all power, long bed, dual gas tanks, tow package, w/shell, 75K mi., exc. cond., \$8,850. 470-5265, Mark.

'94 FORD Explorer Sport, 5 speed, 4 WD, 96K mi., black, gray leather, all power, 10 disk CD, alarm, alloy wheels, 5 new tires, \$8,300/obo. 323/655-5864.

'89 FORD Ranger XLT King Cab w/camper shell & carpeted adjustable insert; V6, 2.9L eng., a/c, pwr. steering/windows/doors, tow pkg., am/fm/cass., cruise control, tilt wheel; well maintained, exc. cond., 80K miles, \$4,500/obo. 626/791-7645

'84 FORD F250 long bed extended cab, dark blue, 4 WD; and '88 PLAYCRAFT 21-ft. deck boat, 6 cyl. outboard, gray with red & black trim, all accessories included, fun-in-the-sun package, both for \$12K, will sell separately. 626/355-1022, after 6 p.m.

'00 HONDA Civic Si, completely stock, ready to modify, rear wing, front mask, tinted windows, alarm/LoJack, weather tech cargo liner, 7,200 mi., \$20,995. 661/255-5645.

'90 HONDA EX sedan, 140,000 miles, dark gray, automatic, sunroof, tinted windows, power everything, clean, all maint. records, \$6,000. 353-3818, eves. and weekends.

'89 HONDA Civic, 4 dr., only 58,000 miles, automatic, a/c, new tires, am/fm/cassette radio, good cond. \$3,950. 957-1798.

'87 HONDA Civic, 2-dr. hatchback; '83 ACCORD, LX, 2-dr. hatchback, both running, good basic transportation. 626/403-0446.

'86 HONDA Elite 150 scooter, 6,840 orig. miles, exc. cond., green/black, \$400. 909/466-8712, after 7 p.m., Charmaine.

'85 HONDA VF 500 motorcycle, 24K miles, nice cond., new chain, \$1,300/obo. 323/341-4739 or jwall@oxy.edu.

HYDRAULIC JACK, for auto, full size, \$85. 626/797-5387.

'88 JAGUAR XJ6 Vanden Plas, well-maint. luxury car, everything works, a real classic, lic. JPLJAG, \$5,000. 805/642-7053.

'96 JEEP Grand Cherokee LTD, 4 WD, V8, leather, loaded, xint. cond., 80K mi., orig. owner, \$14,500. 957-5382.

'91 LINCOLN Mark VII, only 69K mi., exc. cond., beautiful, must see, \$5,750. 542-4152.

'95 MERCEDES BENZ 500 SL conv., white w/black soft top and white hard top, 75K, all the trimmings, CD player, leather seats and custom designed Antera wheels, amazing buy, starting bid \$41,000. 434-5296.

'84 MERCEDES E 420, charcoal, 85K mi., all extras, Blue Book \$19K, sell for \$15,000. 626/355-1022, Bob and Beth, after 6 p.m.

'92 SATURN SL2, twin cam, 4 cyl., auto, re-built eng., new tires/struts/catalytic converter, tint windows, pwr. doors/windows, 124,700 mi., blue int. & ext., gd. transportation car, \$2,500/obo. 626/405-0217, Luis or Victor.

'95 TOYOTA Camry, 24,600 mi., exc. cond., orig. owner, silver, \$12,000. 249-0469.

'95 TOYOTA Tacoma SR5, V6, 3.0 liter, extra cab, 5-speed manual, 4 w/d, most extras, including shell w/carpet kit, alarm, 91,000 miles, \$11,500. 790-5229 or soburks@pacbell.net, Steve.

'95 VOLVO 850 GLT wagon, 5 spd., vg. cond., 102K mi, grn ext./beige leather int., sunroof, ABS, alarm, winter pkg., built-in child booster seat, 6 CD changer, \$11,000. 952-9463, evenings.

'65 VW Notch-Back, Lic. 2WJ138, 2 dr., seats 4, Porsche alloy rims, CD player, Kenwood stereo, new upholstery, needs work, \$3,500/obo. 626/395-6087 or 626/794-0652.

'64 VW, stock, \$500; '62 VW, stock, \$1,000. 952-6181.

### Wanted

CARPPOOLER for existing 4-person pool, each drives 1 day/wk, meet at the Diamond Bar Park & Ride on Diamond Bar Blvd, work hrs.: M-Th, 7:30-4:15, Friday leave at 4 p.m. Ferne Griffin, 4-8583 or Sandy Itatani, 4-6954.

GUEST HOUSE OR APT. to rent for 1 person, 1 bd. or studio, kitch., priv. ba., close to Lab, parking, quiet, avail. by June 1. 249-4546.

SPACE INFORMATION/memorabilia from U.S. & other countries, past & present. 790-8523, Marc Rayman.

SPACE SHUTTLE DECALS from missions STS 41-74, will pay cash or trade for decals from other missions. 352-2337.

VIDEO GAME CARTRIDGES, for Sega "Master System," also may be interested in working controllers/game pads. 626/237-0105, Eric or Azalea.

VOLLEYBALL PLAYERS, coed, all levels of play, Tuesday nts. 8-10 at Eagle Rock High School, \$3/night. 956-1744, Barbara.

### Free

DOG, 4-year-old female German Shepherd mix, neutered, wonderful personality, owner recently died. 909/593-4430.

DOG, Korean Jindo, to good home, female, spayed, loving, likes hiking & long walks, owner moving. 493-2930 day, 626/792-8113,

626/449-2395 evenings.

CAT DOOR, lockable, exc. durable design, better than commercial products, fits 4" x 4.5" opening, ideal for cats being pursued, free installation if needed, within 50 mi. radius of JPL. 789-3694.

### For Rent

EAGLE ROCK, house, large 2 bd. + office, hilltop, garage, yd., view, wood floors, f/p, a/c, fridge, stove, microwave, laundry room, totally remodeled, gated, 5849 Buena Vista Terrace, LA, 90042, \$1,450 + security, 1st and last. 790-1893.

LA CANADA/FLINTRIDGE, separate small rm. w/bathrm., a/c, partially furn., gated, separate entr., temporary OK, close to JPL, very private, \$575. 790-1893.

SOUTH PASADENA, apt., furnished, 1718 Huntington Dr., betw. Marengo and Milan Sts., car space, utilities paid, no pets, non-smoker. \$750. 626/792-9053, Marilyn or Ray.

SUNLAND home, 3 bd., 2 ba., ranch property w/horse corral, on 5.5 acres, 13 mi. to JPL, quiet area with views, 2 level, \$1,395. 626/584-6526, Fred.

SYLMAR home, 4 bd., 3.5 ba., den, bonus room, f/p, 2,500 sq. ft., gated community, pool, near golf and mountains, 20 mi. to JPL, option to buy, \$2,295. 626/584-6526, Fred.

### Real Estate

ALTADENA, 1997 home, on lg. lot, quiet st., 7 min./JPL, 3 bd., 2 ba., 1,250 sq. ft., bright, clean, well maint., mature fruit trees, grapevine covered patio, dining rm., f/p in living rm., lg. 2-car gar. w/direct access, \$310,000. 626/798-4283 or 714/308-6886.

EAST PASADENA, exc. townhouse/condo, desirable loc., 2 bd., 1 full, 2 x 3/4 ba., 2 f/p, lg. living rm., lg. dining/sitting area, sun-room, 2-car gar., end unit, private entry, park-like grounds, pool, sauna, Jacz., newly remodeled bathrms./kitch., all new plumbing fixtures, tiles, granite in kitch., new carpets & wood floors throughout, must see, \$265,000. 626/798-2987.

GRANADA HILLS, 4 bd., 1.75 ba., pool, big backyard, quiet street, 1,750 sq. ft., redone granite kitchen, 2-car gar., \$329,000. 363-2387.

LA CANADA/FLINTRIDGE, hilltop home, above Flintridge Sacred Heart Academy, modern, designed by Millard Sheets, spec tacular views through floor to ceiling glass windows, 4 bd., 2,300 sq. ft. + 900 sq. ft. covered decks and patios, La Canada schools, by owner, \$790,000. 790-4981.

PASADENA, charming 2-bd., 1-ba., bungalow, exc. cond., new roof/plumbing/bath and 8,750 sq. ft. landscaped lot with mt. views, 7 min. to JPL, \$249,000. 626/798-5613.

TUJUNGA, 7521 Kyle St., 3 bd., 2 ba., 2,900 sq. ft. home on fenced 10,000 sq. ft. lot, gourmet kitch. w/granite countertops and 6-burner cooktop, spacious master bedrm. suite and library, oversized 2-car gar., built-in gas BBQ, exceptional storage, details at www.its.caltech.edu/~sharonb/, will cooperate with brokers, open house April 29, 1 to 5 p.m., \$349,000. 352-7321, for appt.

### Vacation Rentals

BIG BEAR cabin, quiet area near village, 2 bd., sleeps 8, completely furnished, f/p, TV/VCR, \$75/night. 249-8515.

BIG BEAR LAKEFRONT lux. townhome, 2 decks, tennis, pool/spa, nr. skiing, beaut. master bedrm. suite, sleeps 6. 949/786-6548.

CAMBRIA, ocean front house, sleeps up to 4, excellent view. 248-8853.

HAWAII, Kona, on 166 feet of ocean front on Keaouhou Bay, priv. house & guest house comfortably sleep 6, 3 bd., 2 ba., rustic, relaxing and beautiful, swimming, snorkeling, fishing, spectacular views, near restaurants, golf & other attractions. 626/584-9632.

HAWAII, Maui condo, NW coast on beach, w/ocean view, 25 ft. fr. surf, 1 bd. w/loft, compl. furn., phone, color TV, VCR, mcrowv., d/w, pool, priv. lanai, slps. 4, 1/15-12/14 \$105/nt./2, 12/15-4/14 \$120/nt./2, \$10/nt. add'l person. 949/348-8047.

LAKE ARROWHEAD house, small 4 bd., 2.5 ba., sleeps 10, quiet, secluded, relaxing, woody area of Cedar Glen, http://www.highcountryrents.com/cedar\_run.html for pictures/rates, JPLers book directly with owner get 2 weekends for 1 + cleaning fees, \$370/weekend. 626/403-0446, owner.

LAKE BEAR LAKEFRONT lux. townhome, 2 decks, tennis, pool/spa, nr. skiing, beaut. master bedrm. suite, sleeps 6. 949/786-6548.

MAMMOTH, Chamonix condo, at lifts 7, 8, 16, 17, walk to Warming Hut, 2 bd., 2 full ba., sleeps 6, microwave and extras, f/p & wood, color TV, VCR, cable, FM stereo, pool & sun area, o/d Jacz., game, rec & laundry rms, play & BBQ areas, conv. to hiking shops, special events, daily/weekly rates, summer rates May thru Oct. 249-8524.

MAMMOTH, Snowcreek, 2 bd., 2 ba., + loft, sleeps 6-8, fully equipped kitchen incl. microwave, d/w, cable TV, VCR, phone, balcony w/view to mtns., Jacz., sauna, streams, fishponds, close to Mammoth Creek, JPL discount. 626/798-9222 or 626/ 794-0455.

OCEANSIDE condo, fully furn., 2 bd., 2 ba., f/p, full kitchen, quiet, relaxing, beautiful setting, located at beachside, BBQ, pool, spa, game room, and great ocean view, easy walk to pier and restaurants, sleeps 6, 2-nt. min., avail. weekly or monthly. 909/981-7492, Jim or Darlene, or dfhaug@yaho.com.

OCEANSIDE, on the sand, charming 1 bd. condo, panoramic view, walk to pier or harbor, pool, spa, game rm., sleeps 4. 949/786-6548.

ROSARITO BEACH condo, 2 bd., 2 ba., ocean view, pool., tennis, short walk to beach on priv. rd., 18-hole golf course 6 mi. away, priv., secure parking. 626/794-3906.

### Editor

Mark Whalen

### Design & Layout

Adriane Jach  
Audrey Riethle/  
Design Services

### Chief Photographer

Bob Brown/Photo Lab

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Advertising is available for JPL and Caltech employees, contractors and retirees and their families. No more than two ads of up to 60 words each will be published for each advertiser. Items may be combined within one submission.

Ads must be submitted on ad cards, available at the ERC and the Universe office, Bldg. 186-118, or via e-mail to universe@jpl.nasa.gov.

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All housing and vehicle advertisements require that the qualifying person(s) placing the ad be listed as an owner on the ownership documents.

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